

ABSTRACT

A method and system for controlling the combustion in a furnace in which the flue gas generated by the burning in the combustion zone is fed back to the combustion zone through a recirculation path to cool the combustion zone so that the temperature is below the melting or softening point of the residual ash in the solid materials. Water is heated and vaporized by the flue gas so as to cool the flue gas. Generated water vapor is also introduced to the combustion zone to increase the burning rate.